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SUMMARY OF NATIONAL PAPER*

The intensified application of science and technology can contribute essentially to tapping natural resources and to developing production in less-developed countries (LDCs) to a level enabling them to find better solutions to their economic and social problems and to participate in world trade as equal partners. On the other hand, growing reliance on technology in the world today not only solves problems but also produces new ones. Besides the ecological limits to growth, economic and social bottle-necks are becoming increasingly apparent. For this reason, industrialization as a tool of development can no longer be regarded as a path leading from a state of under-development to a state without problematic issues, but rather as a process leading from one critical state to another.

For this reason, the assumption that the technological gap between developed countries (DCs) and LDCs can be bridged by the more or less wholesale transfer of technologies developed in DCs over-simplifies the situation. The key role is played not so much by the transfer of technology as by the innovation system in LDCs. The innovation system in LDCs has to find appropriate solutions to the problems of the physical and social environment of these countries and to pass them

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on to the production system. The strengthening of the innovation system in LDCs and its bridges to the indigenous production system in each case therefore takes priority.

This does not mean that LDCs can dispense with importing technologies until they have their own efficient innovation system. Rather, is it important that - in addition to the commercial transfer of technologies which leads directly to the production system in LDCs - other forms of co-operation be introduced which involve the innovation system in LDCs, thus strengthening it and paving the way for solutions geared to the specific requirements and conditions in LDCs.

Four complementary fields of action in co-operation in science and technology for development should, in the opinion of the Government of the Federal Republic of Germany, be distinguished.

Strengthening the innovation system in LDCs and its bridges to the production system in these countries is to be regarded as the most important task of medium-term planning, to be executed chiefly by LDCs themselves. The Federal Government is prepared to give intensified support to these countries' endeavours in this respect. Priority tasks would seem to be:

- the establishment and development of an indigenous scientific and technological infrastructure in LDCs, enabling them to evaluate and select foreign technologies and to plan and execute their own research and development activities, in particular: training and advanced training facilities; research establishments; and technology centres;

- integration of the scientific and technological infrastructure in the production system of LDCs: scientific and technological advisory services; measuring, standardization and testing institutions; and information and documentation centres.

Co-operation between the innovation system in DCs and the innovation system in LDCs carried out by research and development institutions on both sides has the effect of strengthening directly the innovation system in LDCs. The results of such co-operation also stimulate indirectly the production system in these countries. The LDC partner's familiarity with the problem in question facilitates co-operation in that technological solutions are selected which are oriented to the needs of the population, to the resources and manufacturing conditions in LDCs.

The Federal Government gives priority support to this form of co-operation by:

- advising LDCs on the establishment and development of their innovation systems;

- introducing institutional promotion measures, e.g. "twinnings";

- introducing problem-oriented promotion measures - namely, by offering LDCs the possibility of engaging in co-operation projects for which the research and development potential in the Federal Republic of Germany can be used. In the opinion of the Federal Government, the sectors of food and agriculture,

energy, natural resources, water and health are of special importance in this connexion. Use will be made of both the government-supported research establishments and of the research and development potential of universities and industry in the Federal Republic of Germany. Funds are provided, inter alia, within the framework of "scientific and technological co-operation" under the various national research and development programmes in the individual scientific sectors. For the purpose of rationalizing and optimizing these measures, the Federal Ministries competent for development and research and development policy are engaged in close co-operation including joint research and development projects for the benefit of LDCs, which co-operation is to be expanded further by the intensified involvement of science organizations;

- promoting co-operation also below government level, in order to contribute towards the integration of the international scientific community.

Co-operation between the innovation system in DCs and the production system in LDCs is probably expedient only in cases where the indigenous innovation system alone is not yet capable of meeting the urgent technological requirements of LDCs.

For the purpose of promoting this form of co-operation, the Federal Government has introduced a number of measures, the major objectives of which are as follows:

- reducing the information gap between existing research and development results and the knowledge available to LDCs for solving specific problems: by establishing a technological inquiry and information service in the Federal Republic of Germany for LDCs; and by opening up national information systems in the Federal Republic of Germany for the use of LDCs as a contribution to the international efforts to utilize the fund of existing scientific and technological information for development;

- promoting research and development projects in the Federal Republic of Germany for the adaptation of existing technologies and the development of new technologies to correspond with needs and conditions in LDCs;

- facilitating access to the results of its own research and development activities.

Co-operation between the production system in DCs and the production system in LDCs

The commercial transfer of technology influences the technological development of LDCs to a greater extent than the other forms of co-operation. The industries the establishment of which was made possible by such transfer of technology have become important pillars of growth in many of these countries. In some cases - particularly with regard to the transfer of capital-intensive technologies - it has, however, contributed little to solving the employment problem. Thus, the innovation system in LDCs is faced with the task of making a critical choice of technologies. In most cases, this choice will not result in the selection of one specific kind of technology, because only a combination of different kinds of technologies will prove appropriate for the conditions of economic dualism.

The commercial transfer of technology is effected via private enterprises on the individual decisions of which the Federal Government has no influence. The Federal Government does, however, promote the commercial transfer of technology by a number of measures:

- by granting loans, guarantees and tax reliefs;
- by participating in the financing of institutions for the promotion of co-operation with LDC enterprises;
- by constructive co-operation in international endeavours aimed at intensifying the commercial transfer of technology.

These measures on the part of the Federal Government should, wherever possible, be supplemented by complementary measures introduced by LDCs with the aim of:

- creating a good atmosphere for co-operation;
- establishing attractive conditions for the transfer of technology;
- protecting intellectual property;
- not restricting unduly the freedom of contract of co-operation partners.

Within the framework of economic co-operation, "financial co-operation" in particular contributes to the establishment of the physical infrastructure in LDCs, thereby supplementing the commercial transfer of technology, which as a rule requires the prior establishment of an initial infrastructure. Besides this, "financial co-operation" also promotes manufacturing enterprises, which in most cases are designed on a large-scale basis and which - as regards the commercial transfer of technology also - display a preference for capital-intensive solutions. In contrast, "technical co-operation" promotes agricultural and small-scale manufacturing enterprises in particular. The technologies transferred by this form of co-operation are more labour-intensive and better adapted to processes in the traditional sector. It should be emphasized that the direct promotion of the production system by providing advisory services only accounts for part of the various tasks under "technical co-operation". Other major tasks within the framework of this form of co-operation lie in the fields of action mentioned above and in connexion with the development of social infrastructures.

The Federal Government is prepared, inter alia, to:

- provide funds under economic co-operation in individual cases also for the acquisition of patents and licences by LDCs;
- finance domestic currency costs within the framework of "financial co-operation" if such a measure is necessary in order to promote less capital-intensive projects;
- continue its policy of providing untied loans.

The measures for training and further training carried out under all forms of co-operation are especially important. The Federal Government therefore:

- promotes on a priority basis the development and expansion of well-balanced training and further training systems in LDCs for skilled workers, technicians and university graduates;

- endeavours to make better provision for meeting the desire of LDCs for qualified staff in the training and further training sectors, including research;

- supports both the development and dissemination of teaching technologies specially designed to meet the requirements of LDCs;

- attaches particular importance to special training and further training measures accompanying projects to be implemented whenever possible in the respective LDC itself, in order to avoid the brain drain;

- counteracts the brain drain by executing reintegration programmes.

In the opinion of the Federal Government, its measures to tackle the brain drain problem need to be supplemented by endeavours on the part of the native countries of skilled staff, particularly by the better orientation of their training to requirements and employment chances in the respective countries.

In order to be effective, international co-operation in the sector of science and technology requires flexible mechanisms. At the national, regional and global levels it therefore has to take into consideration the interdependence of both national and multilateral activities. It should focus on improving the living conditions and standard of living of man. The Federal Government therefore regards activities oriented to actual local and regional requirements as the priority area of co-operation with LDCs on a partnership basis. In this connexion, particular importance is attached to technological co-operation between LDCs. The promotion of such co-operation is primarily a task for the international organizations. The Federal Government will continue to support this co-operation on a bilateral basis.

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UKRAINIAN SOVIET SOCIALIST REPUBLIC

SUMMARY OF NATIONAL PAPER*

The Ukrainian SSR is a highly developed Soviet socialist republic. The characteristic features of its economy are a powerful iron and steel industry, a ramified engineering industry, a major shipbulding industry, a developed chemical industry and a highly mechanized agriculture. The economy of the pre-revolutionary Ukraine, regarded as an outlying region of the Tsarist empire, was of a one-sided agrarian nature, based principally on manual labour and primitive implements of production.

The Great October Socialist Revolution brought social and national liberation to the Ukrainian people and set the stage for profound qualitative changes in social and political life. During the 60 years of Soviet power, modern branches of industry have come into being and new factories and plants have been set up in the Ukrainian SSR. The Ukraine has become a Republic with a developed industry and intensive agriculture.

Much has been done to increase specialization and concentration of agricultural production, make effective use of land and technology and of the manpower of collective and State farms, and to bring about the application of scientific achievements and progressive knowledge.

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As a result of the implementation of the social programme, the wages of workers and employees have risen by 40 per cent and those of collective farmers by 60 per cent during the past decade alone. Social consumption funds have more than doubled and significant achievements have been recorded in the development of education, medical services and social security. Housing, social and cultural construction and public services are developing at a rapid rate. Science, culture and art in the Soviet Ukraine are also highly developed.

The experience acquired during the years of Soviet power constitutes incontrovertible proof that the Soviet economic system opens up broad prospects and offers great possibilities of using the results of the scientific and technological revolution for the good of mankind.

The entire Soviet people, including the working people of the Ukraine, are at present engaged in the successful performance of a task of immense historical significance: the gradual integration of the achievements of the scientific and technological revolution with the advantages of the socialist economic system, and the increasingly intensive development of methods - inherent in socialism - of linking science with production.

Socialist society is consistently refining its action-oriented programme that reflects the needs of the people not in opposition to but as an integral part of scientific and technological progress and technico-economic development, and of the solution of problems of communist construction, the development of the political system, the improvement of socialist democracy and the upbringing of the new man.

The fact that the place occupied by science among the other areas of activity in the Republic has changed substantially during the past 25 years reflects a most important socio-economic development. The multisectoral nature of the Ukrainian SSR's economy, the explosive growth of science-intensive sectors and industries which act as trail-blazers for the economy, the diversity of raw material resources, etc., are raising a multitude of problems relating to scientific applications which are being solved with the participation of academic scientific research institutes and mainly of sectoral research, planning and design organizations. Priority is given to the development of the so-called "plant sector" of science, i.e. the research and experimental subdivisions of industrial enterprises. An important role in the achievement of scientific and technological progress is assigned to higher educational establishments in the Republic. The staff of the Ukrainian SSR's 143 higher educational establishments constitute a major scientific potential.

In present conditions when specialist knowledge rapidly becomes outdated, exceptional importance is attached to the development of special units for the retraining of scientific personnel.

Not only is the role of State scientific institutions increasing in importance, but informal research activities enabling specialists of all kinds to participate in creative scientific work are developing successfully.

The organization of science at the centralized planned level in the Ukrainian SSR is the responsibility of the authorities and management bodies. Research planning is one of the most important factors in the implementation of a unified scientific and technical policy within the national economy. Scientific work is planned and entails long-term forecasts (10 to 15 years), five-year plans and annual plans. Planning in science, as in other spheres of activity, is based on the Leninist principle of democratic centralism, which ensures the participation of the broad masses in planning and management.

Methods of controlling and planning scientific and technological progress in the Republic are constantly being improved. In accordance with the decisions of the twenty-fifth Congress of the Communist Party of the Soviet Union and the twenty-fifth Congress of the Communist Party of the Ukraine, practical methods have been evolved for further improving control over scientific and technological progress in the Ukrainian SSR, increasing the effectiveness of scientific research and experimental design work, and speeding up the introduction of the results in industry.

Scientific and production associations represent a progressive new organizational form of combining scientific activity with industrial practice. Within these associations it has proved possible, owing to the elimination of organizational barriers, to reduce the period of development of new technologies by 50 to 66 per cent and to improve the quality and the technical and economic indicators of products. Twenty scientific and production associations are at present active in the Ukrainian SSR.

The sectoral (vertical) organization of science which has come into being in the Ukrainian SSR, as in the rest of the country, has in recent years been supplemented by a regional (horizontal) organization. An integrated system of exercising control over scientific and technological progress is being developed in a number of the Republic's industrial centres.

Conditions for the mass diffusion of scientific achievements throughout the economy are particularly favourable under socialism. The absence of competition, trade secrets and other obstacles to the dissemination of advanced knowledge such as exist in conditions of private ownership, creates an effective framework for the more rapid application of scientific achievements to production.

Preparations are being made in the Republic to embark upon the next organizational stage of associating science with production. The academic scientific and technological associations now being organized on the basis of existing units will be combined in a single research, technical design and production economics structure which will be responsible for all stages of the "research - pilot production - industrial application" process under a start-to-finish plan of operations.

The results of the work of scientists in the Ukrainian SSR are reflected in a multitude of indicators which reveal the Republic's scientific and technological potential. For example, in 1977 alone, 670 models of new types of machines and equipment were developed, 885 new industrial processes introduced, and

125,500 technological innovations applied. These measures were tantamount to releasing 111,000 persons for other work, and the savings they achieved amounted to 754.5 million roubles for the year.

An automated control system for the development of science and technology in the Republic, including subsystems for predicting scientific and technological potential and plan estimates in respect of science and technology, and for controlling the preparation and application of major programmes, is to be developed. An integrated programme of scientific and technological progress in the Ukrainian SSR up to 1990 and beyond has already been prepared. "Basic Guidelines of Social and Economic Development up to 1990 and the Year 2000", important subsections of which include forecasts of the development of science and the practical application of the results, are being elaborated for each region and each major town of the Ukrainian SSR.

The technological modernization of production units has been carried out on a wide scale by the application of scientific and technological achievements.

The Republic's industry is producing special-purpose steam and gas turbines, powerful transformers and rolling mills, steel converters and coal combines, and automobile, railway and aviation engineering has been developed.

The economic consolidation and industrialization of agricultural production and the steady improvement in the material and cultural conditions of agricultural workers have been instrumental in bringing about considerable socio-cultural transformations in rural areas.

Advances in the sphere of public health during the years of Soviet power must be counted among the country's major achievements. The State has assumed responsibility not only for the care but also for protecting the health of the population. The Ukrainian SSR occupies one of the first places among the Union Republics and the economically developed countries of the world as regards the number of hospital beds and doctors. The technical equipment of polyclinics has been increased and their diagnostic and treatment possibilities extended. Scientists at the Republic's medical higher educational establishments and research institutes have developed and introduced a large number of new means of improving the environment and preventing, diagnosing and treating numerous diseases.

The present organization of science in the Ukrainian SSR, taken as a whole, therefore makes it possible to concentrate efforts on key areas of scientific and technological progress and to exercise comprehensive control over the complex and ramified system of research in accordance with the general purposes and objectives of communist construction.

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REPUBLIC OF THE PHILIPPINES

SUMMARY OF NATIONAL PAPER*

TOWARDS THE EFFECTIVE UTILIZATION OF SCIENCE AND TECHNOLOGY FOR PHILIPPINE DEVELOPMENT

INTRODUCTION

At the outset, the Philippine National Paper defines the country's concept of development, as reflected in the Five-Year Philippine Development Plan for 1978-1982 in the following words: "The achievement of a much improved life for every Filipino is the supreme national aspiration. Towards this end, the conquest of mass poverty becomes the immediate, fundamental goal of Philippine development." The Plan also recognizes the crucial role of science and technology in the achievement of the nation's development goals. Several activities have led to the preparation of the National Paper, in particular, two national workshops, a subregional meeting and an international conference on themes relevant to the UNCSTD.

1. SCIENCE AND TECHNOLOGY FOR DEVELOPMENT

There have been sustained and extensive efforts on the application of science and technology for Philippine development. Evidence for these efforts is provided

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principally by government recognition and support to Philippine science and technology through the promulgation of the "Science Act of 1958 creating the National Science Development Board as the highest science policy-making body and co-ordinating agency, through substantial funding for research and development, and through a number of policies which weave science and technology into national development efforts. This governmental support has led to the building up of a sizable and significant science and technology infrastructure in the Philippines, involving a large number of agencies and research and development establishments and a body of scientific and technological manpower of perhaps over a 100,000 personnel. The technological demands arising from the series of four-year development plans from 1967-1977 were responded to by Philippine science and technology in a number of ways, but particularly with contributions to import-substitution programmes, the shift from assembly-type to finishing-type industries, the utilization of locally available raw materials in cottage, small and medium industries, and the attainment of self-sufficiency in rice production. During this period, the first Research and Development Programme for 1973-1976 was formulated by NSDB with its emphasis, inter alia, (1) on the utilization of abundant indigenous raw and waste materials for the production of import substitutes, as well as the development of exportable manufacture, (2) development of raw material and process techniques, and (3) the adoption and application of methods for quality standardization of products for the local and foreign market.

Notwithstanding these substantial efforts and significant successes, there are serious obstacles which come in the way of effectively harnessing science and technology for development. One major obstacle is associated with the transfer of technology from developed to developing countries. In general, these transfers are not only very expensive, but they often involve restrictive clauses which are to the disadvantage of the importing country. Also, in many cases, the technologies transferred are inappropriate in that they are: (1) too far advanced and not adapted to the importing country; (2) ill-suited to its inadequate infrastructure, insufficiently trained manpower, restricted market, etc.; and (3) inconsistent with national goals. This underlines the crucial problem of the choice of those technologies which will advance the development efforts of the country. Another category of obstacles are related to the internal transfer of technology from "producers" to users, and range from the lack of sufficient capability in some areas to the lack of faith of the end-users in local experts.

The mismatch between the development of human resources and developmental needs is also an important problem, as in the persistence of a product-mix which is a carry-over from a dependence on the developed countries.

The impact of these obstacles has been considerable. They have contributed to the persistence of a number of serious economic and social inequities, including the inadequacy of basic needs; income inequalities, unemployment and underemployment, balance of payments and price instability, an energy constraint, environmental problems and regional growth disparities, all of which are aggravated by a rapidly growing population.

Against this background, the Five-Year Development Plan for 1978-1982 outlines a fundamentally different approach to development. It demands "the nation's concerted attack on the problems of mass poverty and unemployment and underemployment, and social injustice".

It rejects the equating of development with mere economic growth which was the view prevailing in the past. The Plan defines detailed development objectives and strategies for the various economic and social sectors, and for infrastructural components such as energy. For instance, it states that "the growth of the industrial sector will be geared toward the following objectives: (1) employment generation; (2) increases in net foreign exchange earnings; and (3) greater self-reliance in the supply of important commodities, including energy sources.

It is these development objectives and strategies which constitute the new perspective for Philippine science and technology.

The implementation of this new perspective is already in progress with a number of measures including those concerning new policies for the transfer of technology, the contribution of indigenous research and development, strengthening of the institutional system of science and technology and the reversal of "brain drain".

Realizing that these current measures do not constitute a complete and coherent package, the National Paper makes a number of new recommendations. It underlines the paramount importance of choosing technologies which are appropriate from the standpoint of the country's development objectives. Such a set of appropriate technologies are sure to consist of a mix of capital-intensive and labour-intensive technologies, the latter category being particularly suitable for cottage, small and medium industries in rural areas. It also recommends improvements in national approaches to technology transfer, particularly the widening of the source of technologies through the strengthening of the information system now in operation; it suggests an interaction between the government and private dissemination of successful research and development to end-users; it recommends that extension agents, who can serve as an ideal link between technology "producers" and users, be assigned a crucial role; and quite apart from these proposed measures, it also recommends new science and technology approaches.

2. INSTITUTIONAL ARRANGEMENTS AND NEW FORMS OF INTERNATIONAL CO-OPERATION IN THE APPLICATION OF SCIENCE AND TECHNOLOGY

The country is giving importance to international co-operation in increasing the effectiveness of the country's efforts in science and technology development. Such co-operation can take place through bilateral, regional and multilateral arrangements. This includes joint and co-operative ventures with other countries especially with those in South-East Asia as exemplified by the Association of Scientific Co-operation in Asia (ASCA), and the Association of South-East Asian Nations (ASEAN).

Technical co-operation could also be achieved through the pooling of resources of co-operating countries to make their science and technology more effective.

Regional co-operation could help solve many problems. For instance, (1) the development of science and technology in member countries could be catalyzed through the establishment of a central regional body, which would supervise and co-ordinate a network of technological information systems; (2) centres of

knowledge on appropriate technologies can be established; (3) a technological assessment can be done on a regional basis; (4) a scientific and technological resource inventory survey can be undertaken to identify ways of matching the available skills and expertise with local needs; (5) research and development institutions that work mainly on the adaptation of already proven technologies could assure the suitability of technologies to the areas where they will be implemented; and (6) transferable indigenous technologies could be properly disseminated.

3. UTILIZATION OF THE EXISTING UNITED NATIONS SYSTEM AND OTHER INTERNATIONAL ORGANIZATIONS

Likewise, the United Nations system, and its member organizations and specialized agencies, have in some cases facilitated transfer of technology and the effective dissemination of information.

The National Paper reiterates its commitment to the various resolutions co-sponsored or supported by the Philippines especially in the early adoption of the International Code of Conduct and the International Code of Ethics. However, it also takes note of the various weaknesses of the United Nations system, in particular (1) the overlapping functions of some United Nations agencies; (2) the proliferation and duplication of information and technical advisory systems, and their under-utilization; (3) the weak linkages between the United Nations system and counterpart national focal points.

The following developments are therefore necessary: (1) establishment of national referral and documentation infrastructures which can secure foreign scientific and technological knowledge from foreign sources for evaluation relative to local needs, by means of appropriate technical-assistance programmes of national, regional and international levels; (2) integration of existing international systems through possible unification and standardization of systems and procedures; (3) enhancement of the quality of information, and its reclassification according to specific criteria as local, climatic and resource conditions; (4) pilot projects on selected countries to highlight the returns which can be obtained through the proper utilization of existing science and technology information being processed by existing international systems; and (5) identification of national focal points for all international arrangements on science and technology to rationalize the assistance extended to countries.

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INDONESIA

SUMMARY OF NATIONAL PAPER*

Indonesia's future development depends critically on its ability to optimize the utilization of its human and natural resources in a way that is in harmony with its environment and for the benefit and welfare of its people. In the development process appropriate science and technology has to be developed and applied. The existing science and technology resources have to be fully utilized, improved and co-ordinated in order to strengthen the science and technology base for development.

Five problem areas are presented as illustrative problems in the development and application of science and technology for national development, i.e.:

- food and agriculture;
- health, human settlement and environment;
- natural resources and energy;
- transportation and communications; and
- industrialization and human resources.

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International co-operation in science and technology could enhance the process of national development since through such co-operation there will be an exchange of information, knowledge and experience relevant to the development and application of science and technology needed for national development.

Specific recommendations are proposed on ways of improving international co-operation in the field of science and technology to ensure national development.

VI. Recommendations

There are five priority areas which must be considered when considering future progress in the field of development. These have been chosen as those which can most effectively answer the national development challenge and in which science and technology can play an important role.

These five areas are:

- The development of non-renewable and renewable natural resources;
- The fulfilment of basic needs; food, housing and clothing;
- The raising of the quality of life, health and education;
- The strengthening of the physical infrastructure; transportation and communications;
- The management of social dynamics, ecosystems, social structure and dynamics and industrialization.

In Indonesia, international co-operation in science and technology should be appropriate to the above-stated problem areas or it should strengthen and further develop the scientific and technological infrastructure.

The national development of Indonesia has to be based on self-reliance in three important areas: national resources, basic needs and technology.

Many recommendations have been made on the subject of international co-operation at various international and regional forums. The important issue is not the recommendations themselves but the willingness and responsibility of the Member States to fulfil their commitments. Hopefully, the UNCSTD results will be felt by all countries throughout the world and will help to create the "New Technological Order".

1. To strengthen the scientific and technological infrastructure.

Infrastructure is the foundation of development. Therefore a national development programme in science and technology should concentrate on the development of the nation's resources and should:

(a) encourage manpower development programmes at all levels, through formal and non-formal education, training and other suitable systems;

(b) improve the facilities for science and technology (institutions, equipment, etc.);

(c) increase the budget allocation for science and technology;

(d) strengthen the management system and the delivery system of science and technology.

The national development programmes should also be backed up by international co-operation in science and technology which should be directed towards the development of the nation's infrastructure and should:

(a) promote manpower development programmes at all levels through formal and non-formal education, training, exchange of experts and other suitable systems;

(b) strengthen the national documentation and information centres and establish a national information dissemination system;

(c) promote and strengthen extension services which are directly needed by the society, such as industrial extension services and agriculture extension services, etc.

2. To facilitate international and interregional co-operation in science and technology.

From past experience in the field of international co-operation it is evident that a more efficient system is necessary. Thus action should be taken:

(a) to overcome unnecessary bureaucracy;

(b) to give the developing countries more opportunity to take part in the management of international co-operation projects, from the design stage through to evaluation;

(c) to establish an international assessment system in science and technology based on broad criteria;

(d) to encourage the setting up of long-term international and interregional projects.

3. To facilitate regional and subregional co-operation among developing countries in science and technology.

Developing countries in the South-East Asian region have similar economic characteristics and are mostly rural and agro-based. Thus action should be taken:

(a) to encourage and to establish co-operation in science and technology especially concerning problems of common interest in the region: e.g. food and agriculture, post-harvest technology, fisheries, nutrition, health and environment;

(b) to encourage the non-governmental/private sector to share in regional and subregional co-operation in science and technology.

4. The Standing Committee of ASEAN, the Association of South-East Asia Nations, should promote more research and development projects in its member countries.

5. An international effort must be made to strengthen scientific and technological research and development institutions by sistership or other types of linkage to institutions with the same objectives or activities.

6. To encourage the transfer of technology.

This form of international co-operation could come from industrialized countries or international enterprises which have certain activities in the country concerned. In this way the transfer of technology may be more suited to the environmental conditions of the country concerned.

7. To develop the capability of the developing countries by exemption from or reduction in royalties and licensing fees when importing technologies from abroad.

8. To promote a national body for the transfer of technology which will formulate the pattern for co-operation and be responsible for programme planning and control and its subsequent implementation.

9. To promote and develop further the TCDC programme

(a) to encourage the industrialized countries to take part in sponsoring the programme;

(b) to develop a more appropriate communications system to support the TCDC programme in science and technology.

10. Action should be taken to separate technology from traditional foreign investment packages; that is, to remove restrictive business clauses in the agreements and distribute control over the use of technology. Developing countries should be given more chance to take part in the implementation of a technology when it is already in use in the country; for example the building-up of the site or plant.

11. To optimize the existing institutional system by establishing a network among the agencies both under United Nations sponsorship and in the industrialized countries and to make a co-ordinated effort to ensure that aid programmes are complementary to the development programmes of the countries involved.